

EX PARTE 27 LATE FILED

DOCKET FILE COPY ORIGINAL

May 21, 1996



**Building The
Wireless Future™**

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

CTIA

Cellular
Telecommunications
Industry Association
1250 Connecticut
Avenue, N.W.
Suite 200
Washington, D.C. 20036
202-785-0081 Telephone
202-785-0721 Fax

Re: Ex Parte Presentation
Revision of Part 22 of the Commission's
Rules Governing the Public Mobile Services
CC Docket 92-115

Dear Mr. Caton:

On Monday, May 20, 1996, the Cellular Telecommunications Industry Association ("CTIA") represented by Mr. Randall Coleman, Vice President of Regulatory Policy and Law, Ms. Andrea D. Williams, Assistant General Counsel, and Mr. Leslie Owens, Director of Logical and Cross-Technology Security, AT&T Wireless Services, met with Commission staff in separate meetings to discuss wireless fraud, particularly ESN security and authentication. CTIA also discussed issues raised in C2+ Petition for Reconsideration of Section 22.919 of the Commission's rules. Attached is a list of Commission staff members that attended the meetings.

At the meetings, CTIA presented the attached documents. Pursuant to Section 1.1206 of the Commission's Rules, an original and one copy of this letter along with the attachments are being filed with your office. If you have any questions concerning this submission, please contact the undersigned.

Sincerely,

Andrea D. Williams
Assistant General Counsel

Attachments (2)

021
MAILED
JUN 1 1996

Office of the Chairman

Mr. Blair Levin, Chief of Staff
Ms. Jackie Chorney, Legal Advisor

Office of Commissioner Quello

Mr. Rudy Baca, Legal Advisor

Wireless Telecommunications Bureau/Office of the Bureau Chief

Ms. Michele Farquhar, Bureau Chief
Ms. Jennifer Warren, Assistant Bureau Chief
Dr. Thomas Stanley, Chief Engineer
Ms. Elizabeth Lyle, Legal Advisor to Bureau Chief

Wireless Telecommunications Bureau/Commercial Wireless Division

Mr. David Furth, Chief, Commercial Wireless Division
Mr. Jay Jackson, Engineer Advisor to Chief of CWD
Mr. Steve Markendorff, Chief, Broadband Branch

Wireless Telecommunications Bureau/Enforcement Division

Mr. Howard Davenport, Chief, Enforcement Division
Mr. Myron Peck, Deputy Chief
Mr. Michael Ferrante, Engineer



Cellular Fraud: History, Status, Technology, and Prevention

**Prepared for
Federal Communications Commission
– 20 May 1996 –**

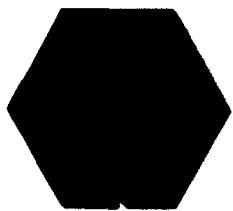
**Leslie D. Owens
AT&T Wireless Services**

“Once you squeeze the tube, the toothpaste is out
forever.”

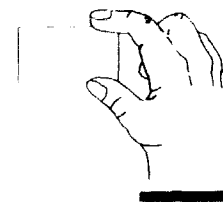
– J. Ehrlichman

“For also knowledge itself is power.”

– F. Bacon



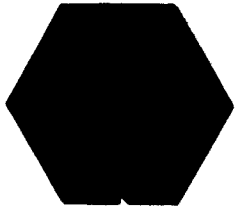
Speaker Information



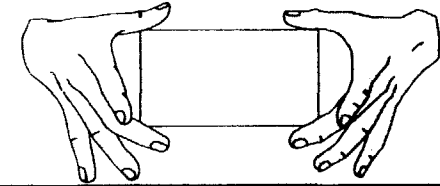
Leslie D. Owens
Director, Logical & Cross-Technology Security

AT&T Wireless Services HQ
5000 Carillon Point
Kirkland, WA 98033

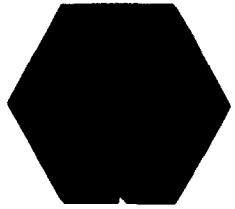
(206) 828-1840 (Office)
(206) 828-2334 (Fax)
les.owens@attws.com (Email)



Agenda



- ◆ **Status and History of the Cellular Industry and Cellular Fraud**
- ◆ **Cellular Fraud Facts and Trends**
- ◆ **Taxonomy of Fraud and of Counterfeit Telephones**
- ◆ **Techniques and Tools to Combat Fraud**
- ◆ **Introduction to Cryptology and “Challenge-Response” Authentication**
- ◆ **Slideshow of Bandit Tools and Telephones**
- ◆ **Demonstrations**

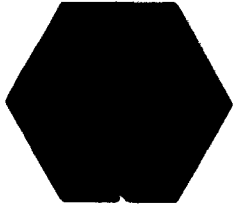


What Are the Odds?

◆ You will ...

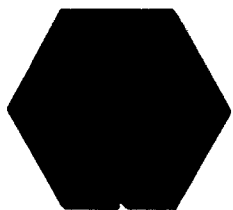
... be killed in an air crash	1 in 4,600,000
... win in a state lottery	1 in 4,000,000
... die in a fire this year	1 in 40,000
... develop a brain tumor	1 in 25,000
... die in a car crash	1 in 125
... undergo an audit this year	1 in 100
... become a victim of fraud	1 in ?

Source: "What the odds are" by Les Krantz



Fraud and Misuse: A Perspective

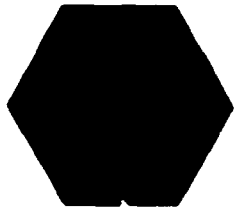
- ◆ **Cable industry losses exceeded \$4.7 billion in 1992**
- ◆ **Toll fraud is estimated at \$4 billion annually**
- ◆ **Credit-card losses approached \$1 billion in 1993**
- ◆ **Losses from IRS filing fraud range from \$1 billion to \$5 billion annually**
- ◆ **Cellular fraud “hard dollar” losses exceeded \$700 million in 1995**



What are the Telecom Fraud losses?

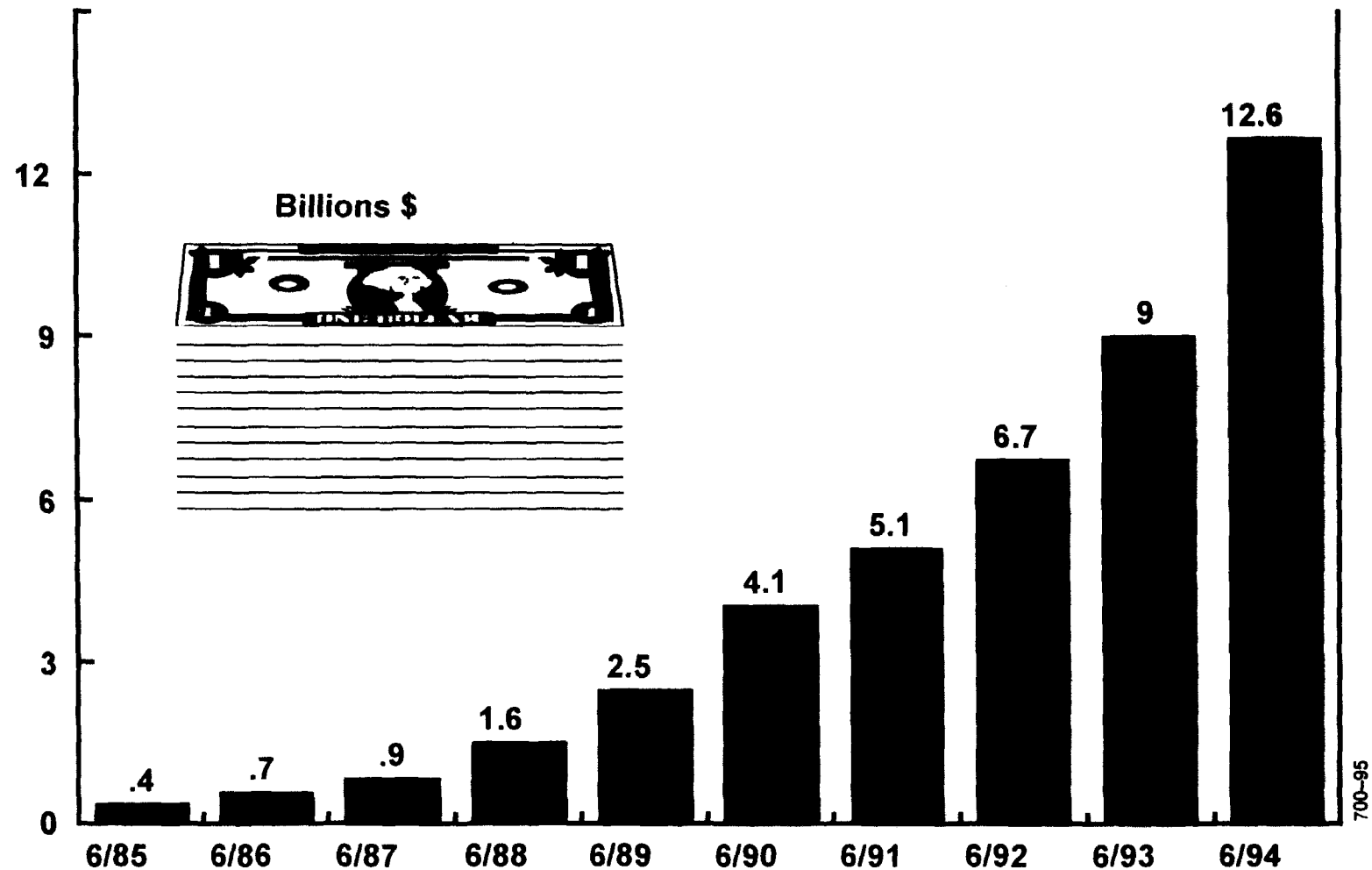
1995 Estimates are ...

◆ ...CPE toll fraud	\$1.3 Billion
◆ ...Subscription fraud	\$450 Million
◆ ...Calling card fraud	\$450 Million
◆ ...Cellular fraud	\$400 Million
◆ ...800 calls by hackers	\$235 Million
◆ ...Hits to switches/networks	\$190 Million
◆ ...Prisoner toll fraud	\$100 Million
◆ ...800/900 fraud	\$100 Million
◆ ...Pay phone fraud	\$90 Million



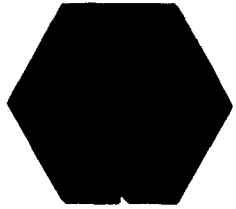
Cellular Fraud: History, Status, Technology, and Prevention

Twelve-Month Revenues June 1985 – June 1994



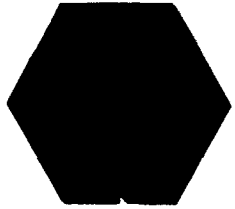
Source: CTIA Mid-Year Data Survey, June 1994

AT&T Wireless Services



Definition of Fraud

- ◆ **The unauthorized and/or illegal use of a cellular telephone or a cellular network. This includes loss of airtime and toll revenues due to misrepresentations by employees, customers, and criminals.**



Cellular Fraud in North America

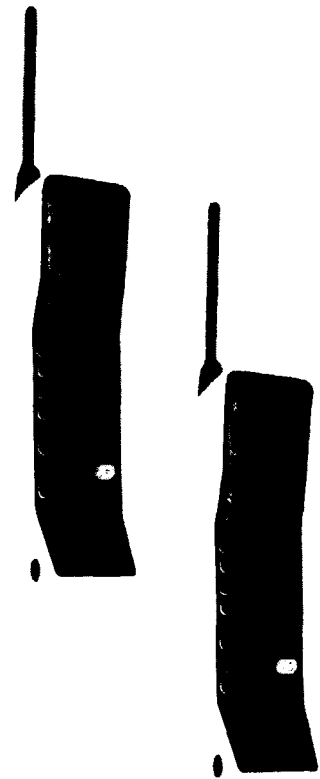
Cellular Communications Era (1983-??)

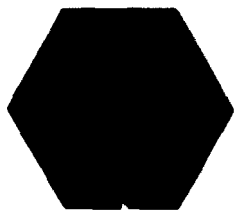
Roamer Fraud Period (1985-1988)	204,000 Subscribers
	2 Million Subscribers

Tumbling Fraud Period (1989-1992)	2.7 Million Subscribers
	11 Million Subscribers

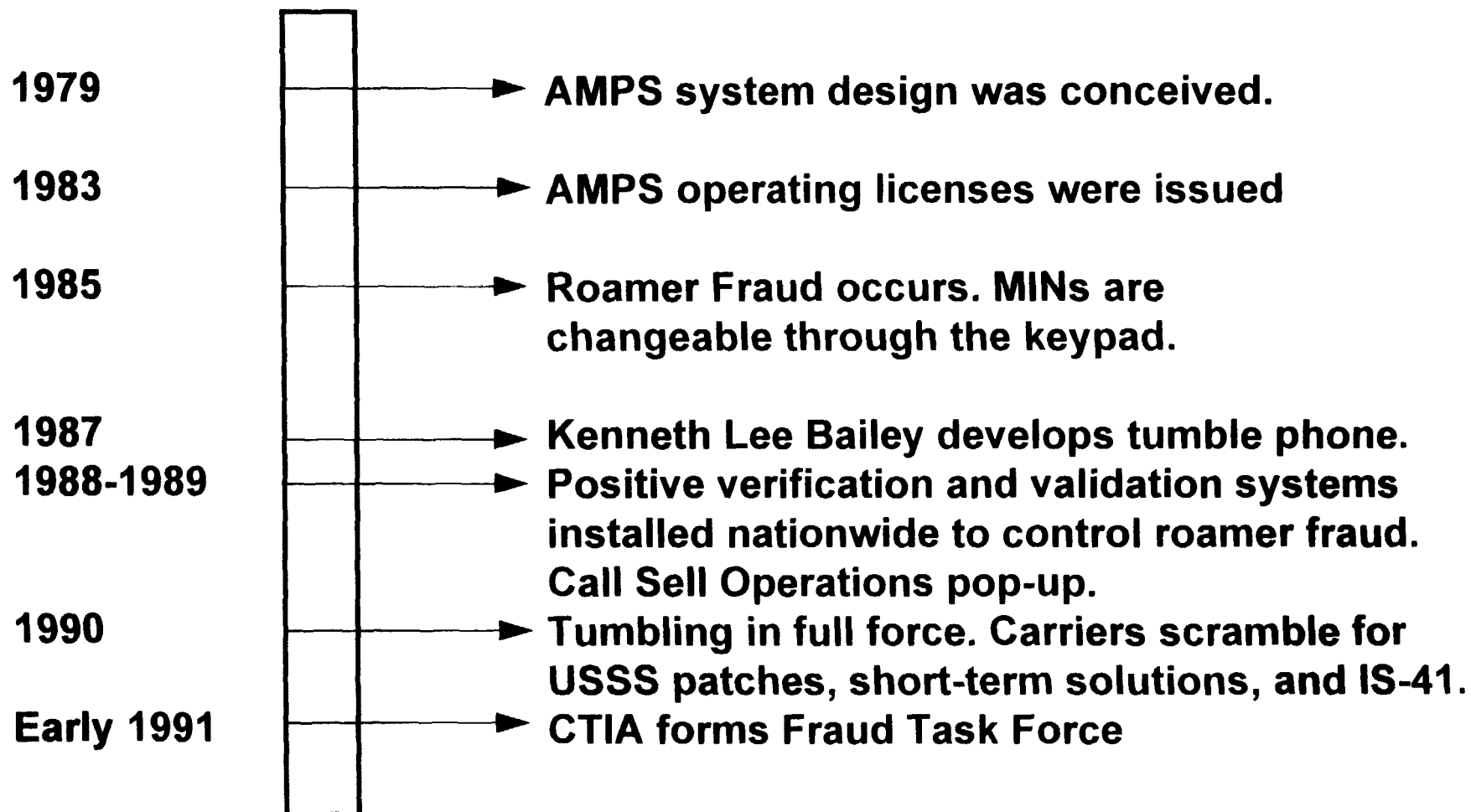
Cloning Fraud Period (1992-200?)

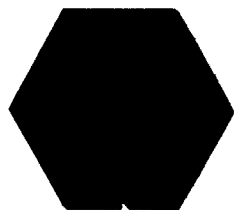
1996: 33 Million Subscribers





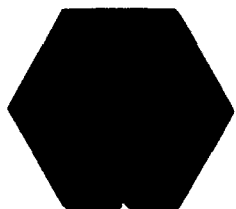
History of Cellular Fraud in North America





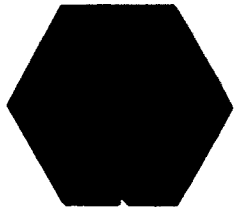
History of Cellular Fraud in North America (continued)

Early 1991	→	Anthony Timson software enters the marketplace.
1991	→	Pre-call validation prevents tumbling.
1992	→	Cloning begins. ESN Readers are used as a tool to capture ESN/MIN pairs. IS-54B specification finalized.
Mid-1993	→	CTIA forms Technical Analysis Laboratory
Early 1994	→	Taiwanese Black Boxes appear. Lifetime telephones by Clinton Watson appear.
1994	→	New forms of Timson software and systems appear. Second generation lifetime appears.
Early 1995	→	CopyCat Boxes appear widely. PINs are used.
Mid-1995	→	All types of counterfeiting systems are prevalent.
Early 1996	→	Authentication begins.



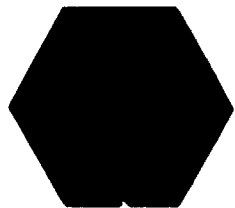
Facts Regarding Cellular Fraud

- ◆ **Fraud will never go away completely**
- ◆ **Typically associated with other criminal activities (gambling, racketeering, drug dealing, etc.)**
- ◆ **Existing antifraud tools will ultimately have minimal impact**
- ◆ **Heightened awareness will work for/against problem**
- ◆ **Weakness of single link may compromise whole system**

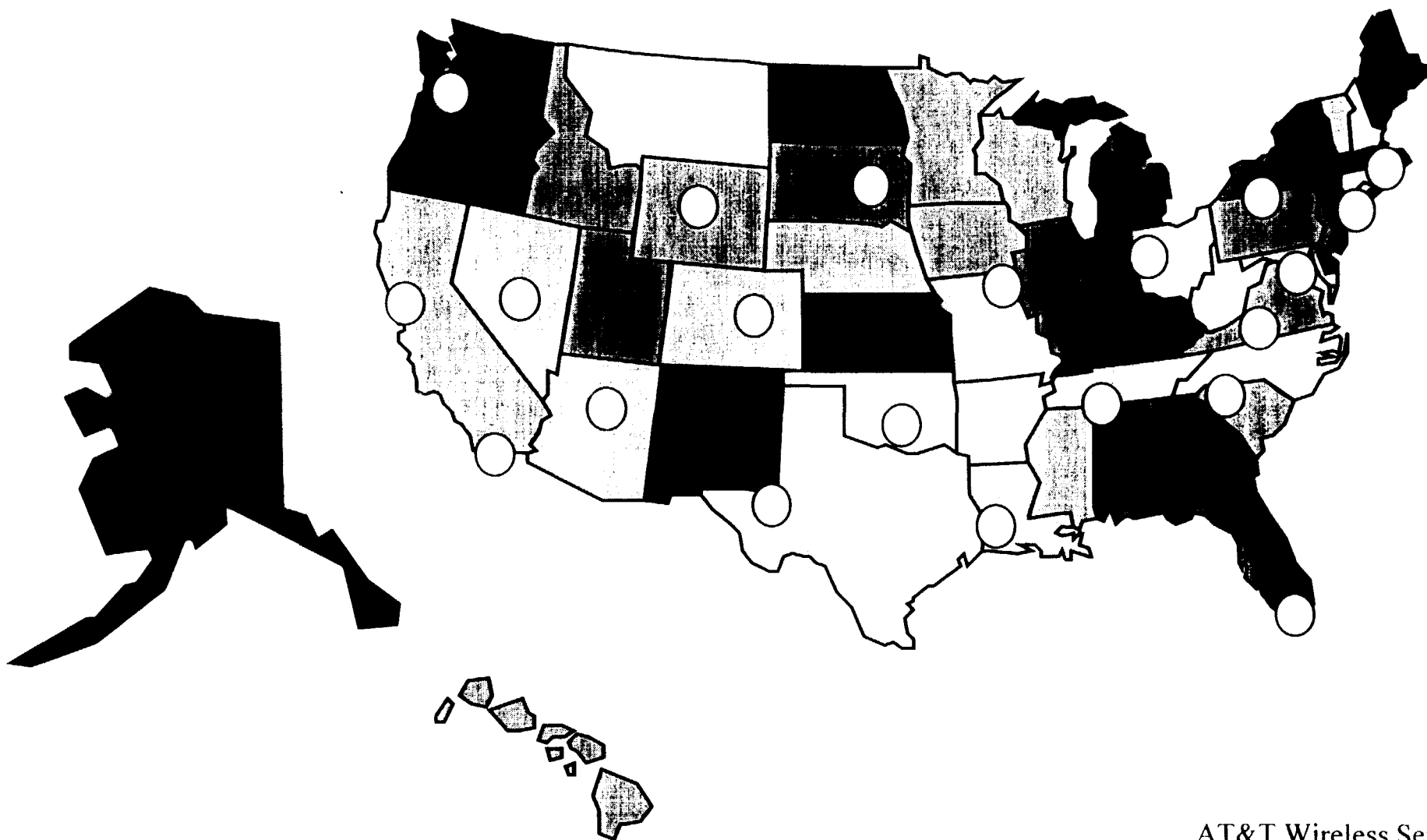


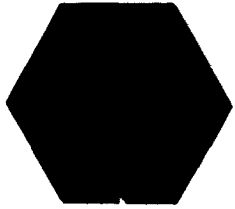
More Disturbing Cellular Fraud Trends

- ◆ **Fraud will get significantly worse in the near term**
- ◆ **“Honest” people are committing fraud**
- ◆ **Cellular bandits have plenty of money and resources**
- ◆ **“Cellphone phreaking” concepts are shared**
- ◆ **Bandits are getting more technically sophisticated**
- ◆ **Software “tools” are becoming more readily available with Information Superhighway access**

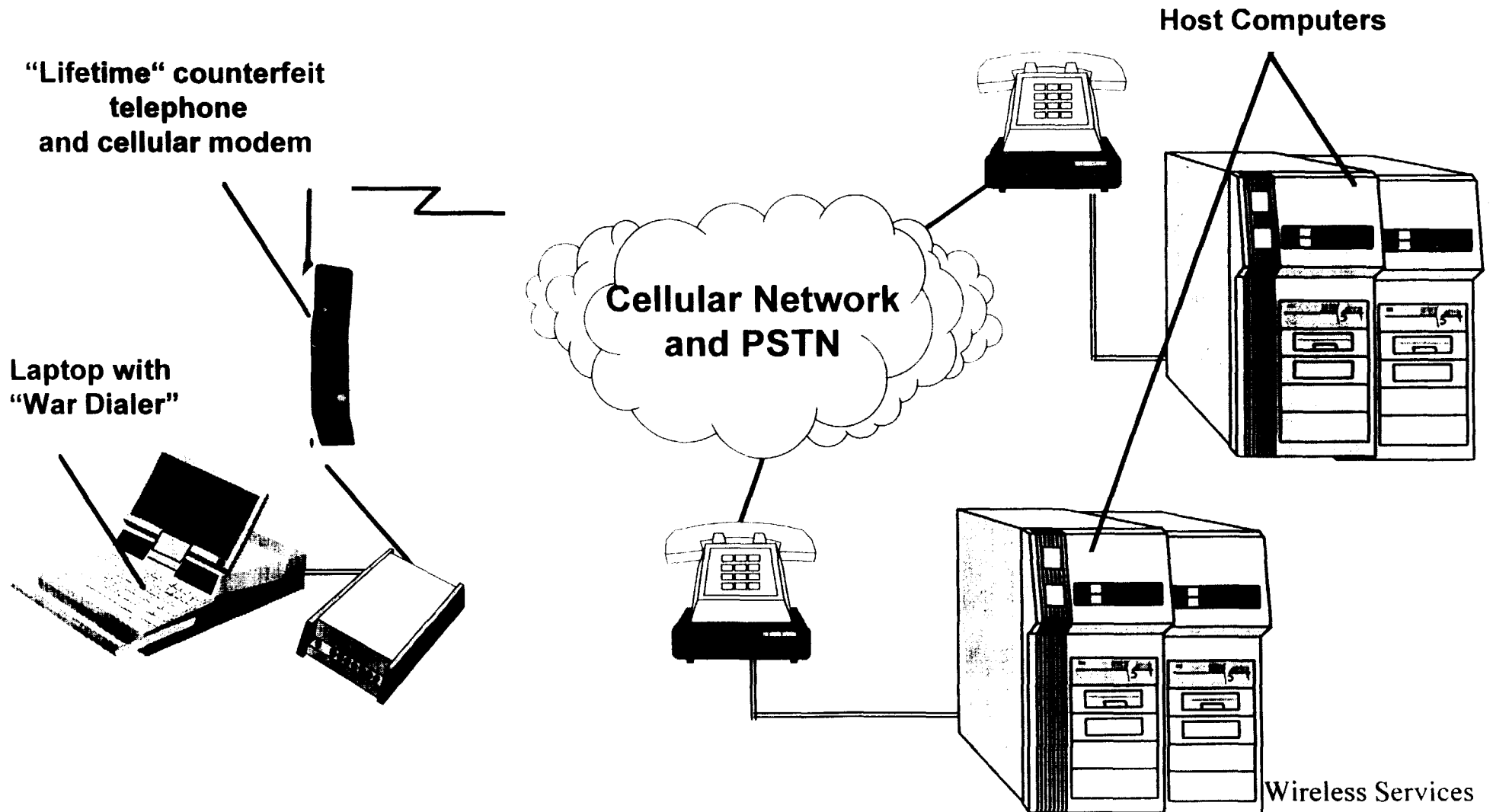


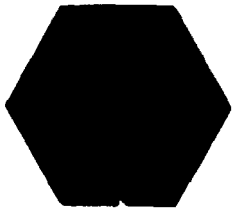
Cloning – Nationwide and Dynamic



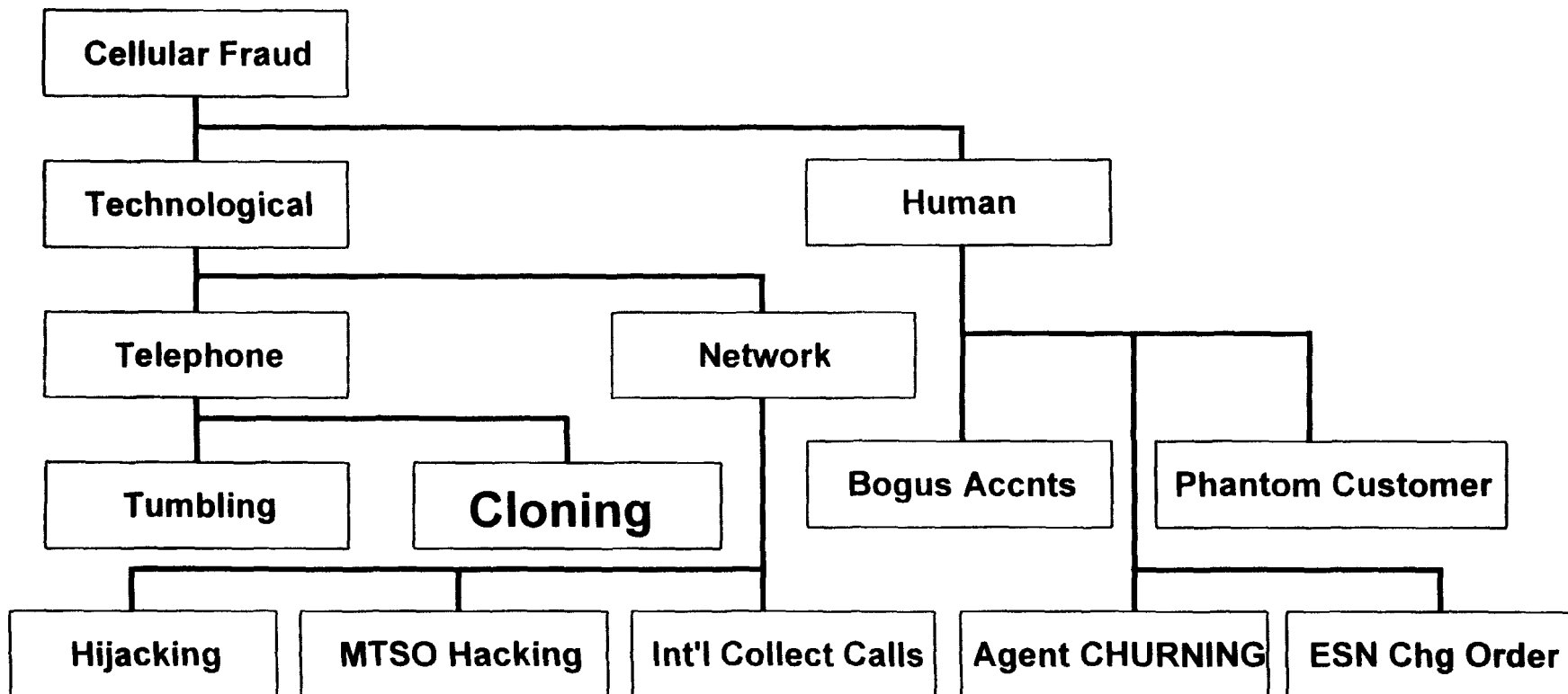


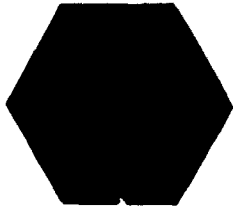
Convergence of Hacking and Phreaking



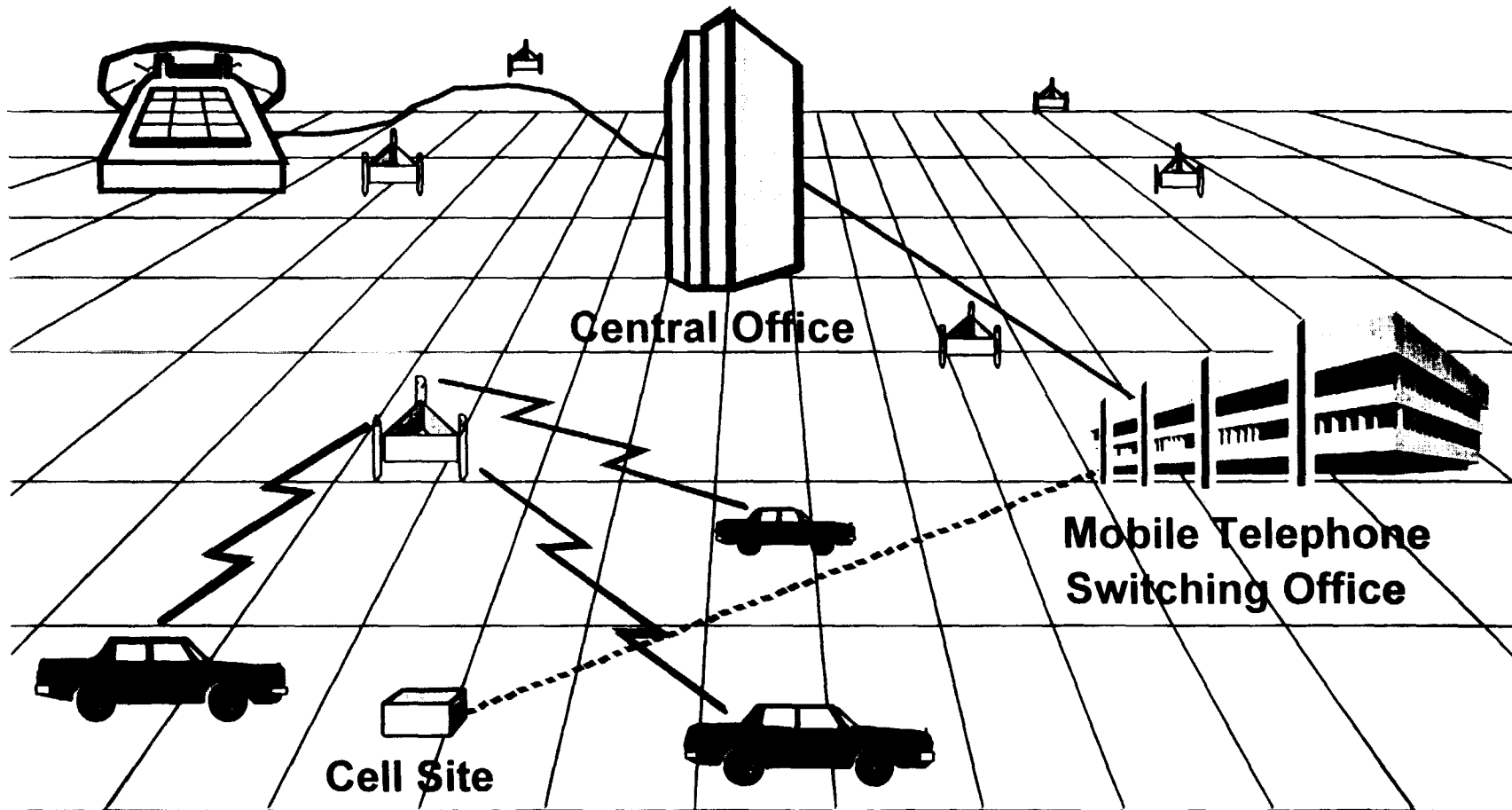


General Taxonomy of Cellular Fraud

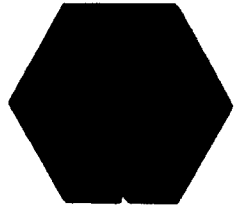




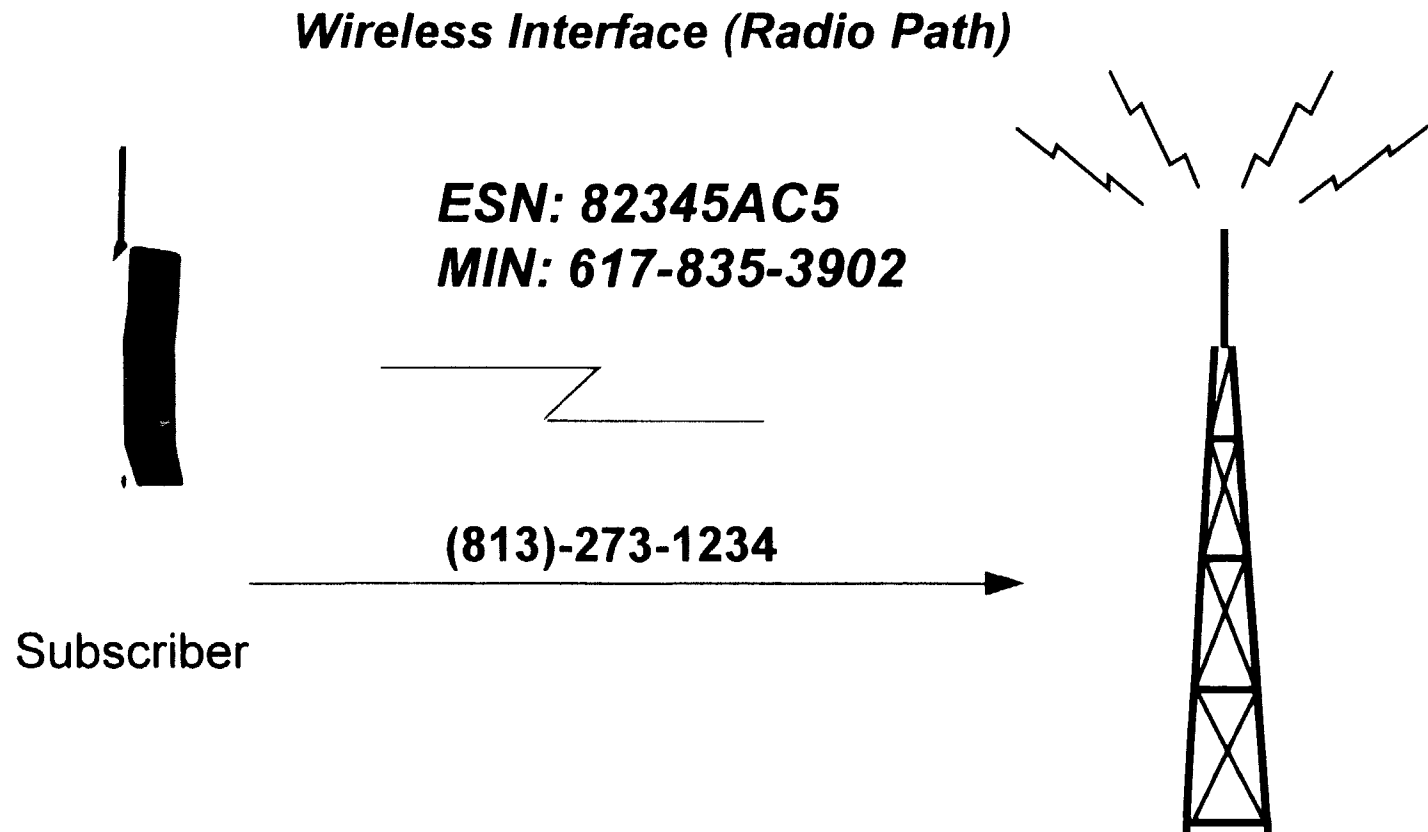
Principle of Cellular Telephony



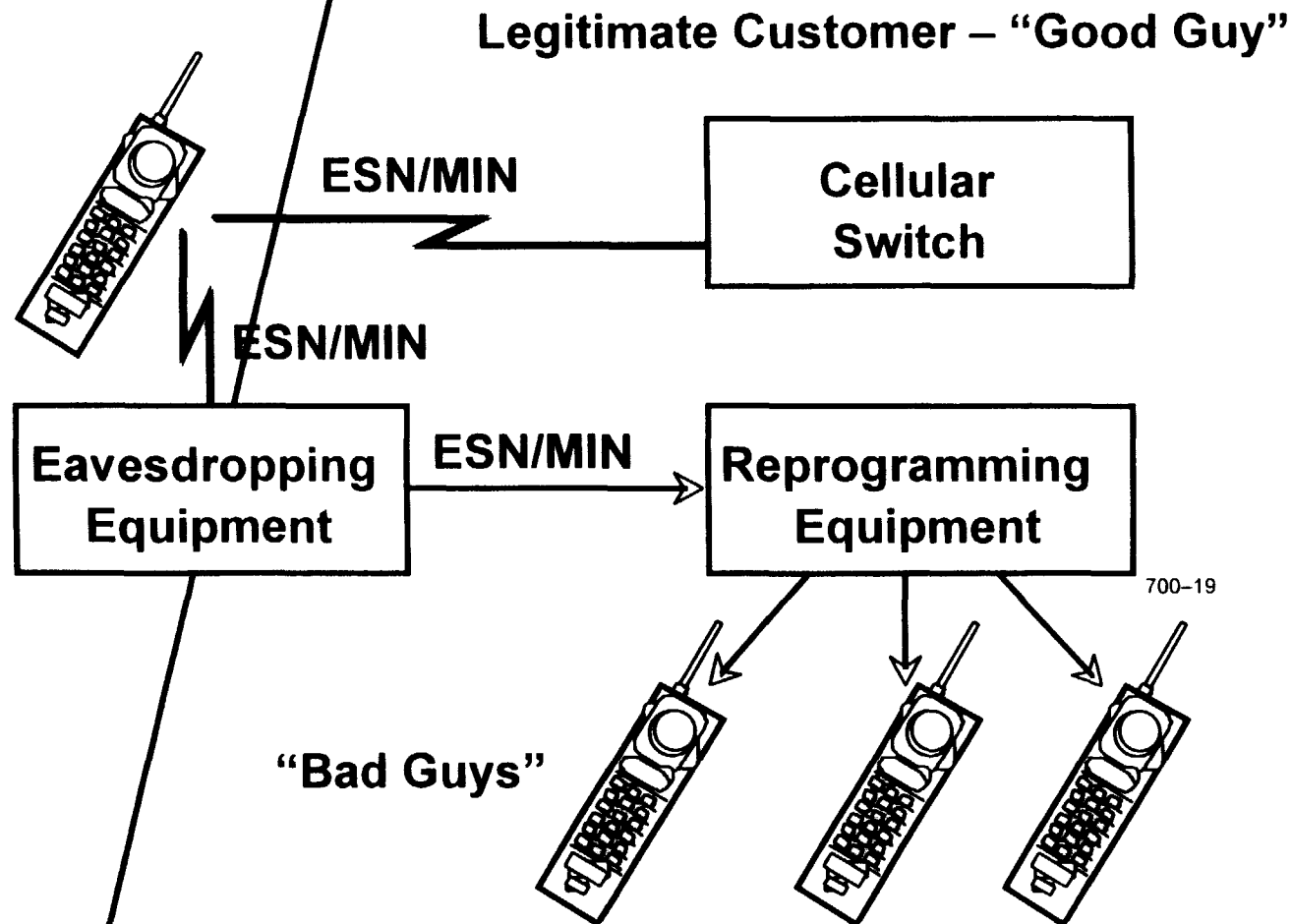
700-3

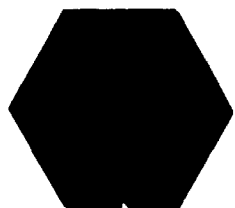


Typical Cellular Call – No validation



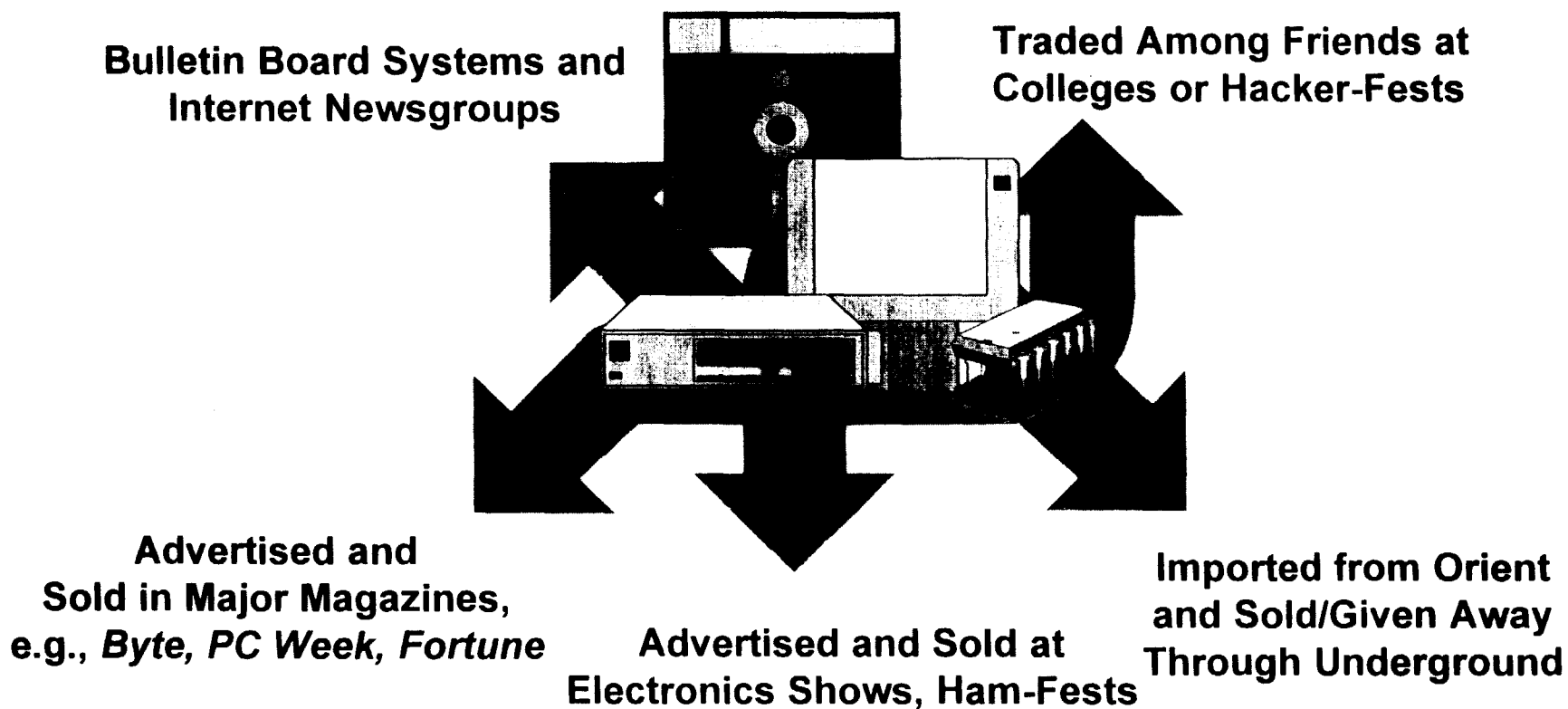
Cloning: The Approach

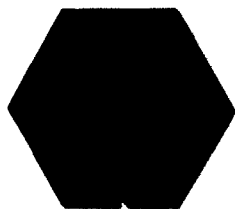




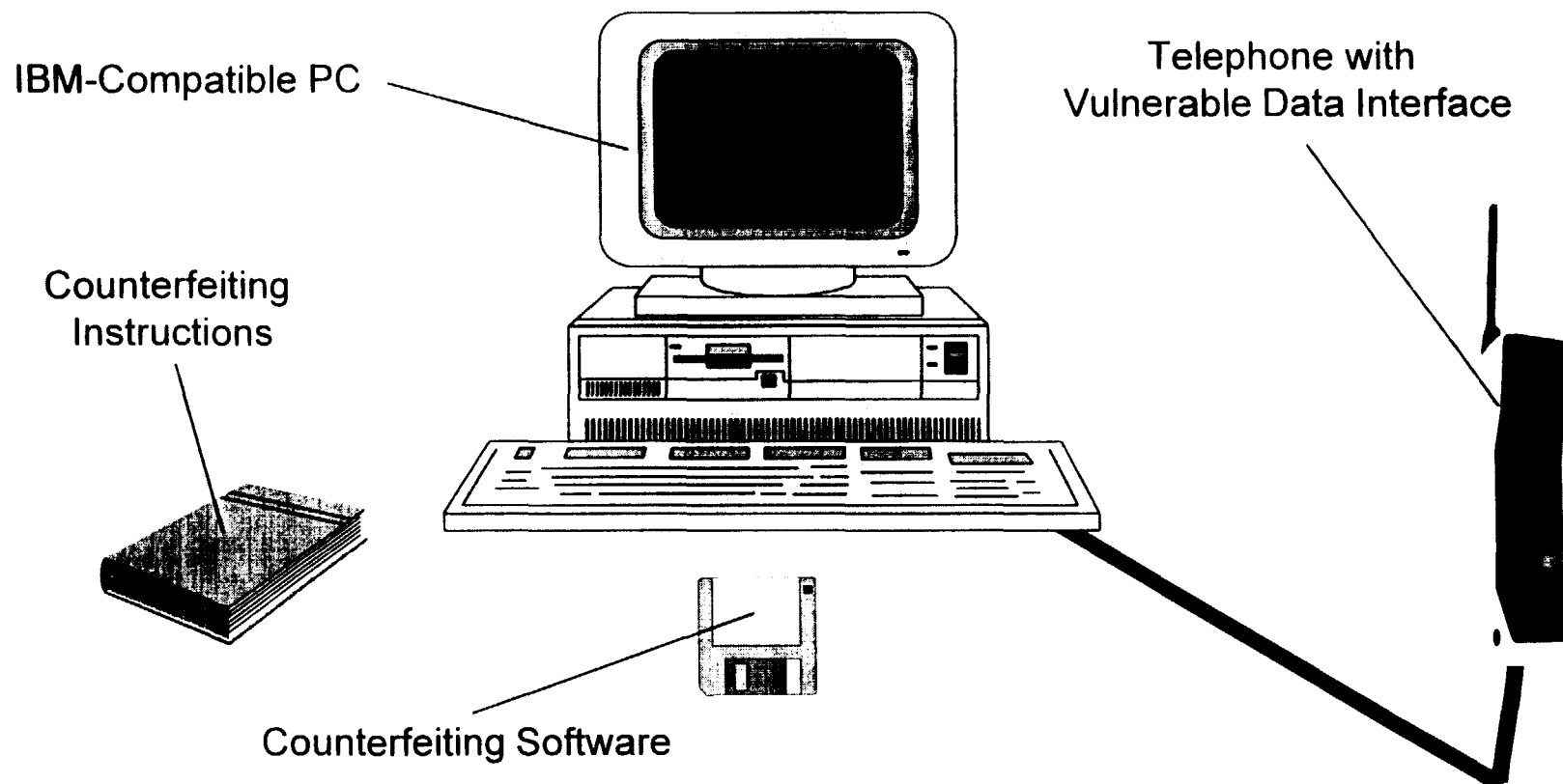
Cellular Fraud: History, Status, Technology, and Prevention

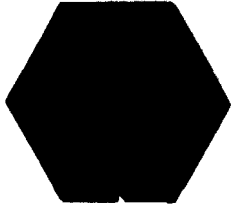
Distribution channels for Counterfeiting Tools





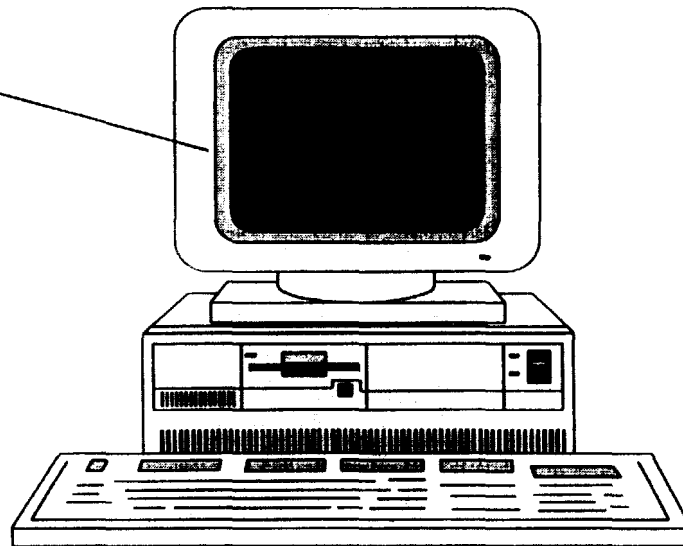
Typical Class A Counterfeiting



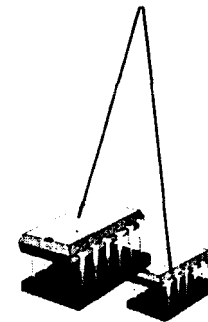


Typical Class B Counterfeiting

IBM-Compatible PC



PROM or serial
EEPROM Chips



Counterfeiting Software
or EEPROM Programmer

